

IMPRESSIONS



MULTIPURPOSE DRILLING RIGS

DIRECTIONAL DRILLING
WITH COMMUNICATION
SYSTEM

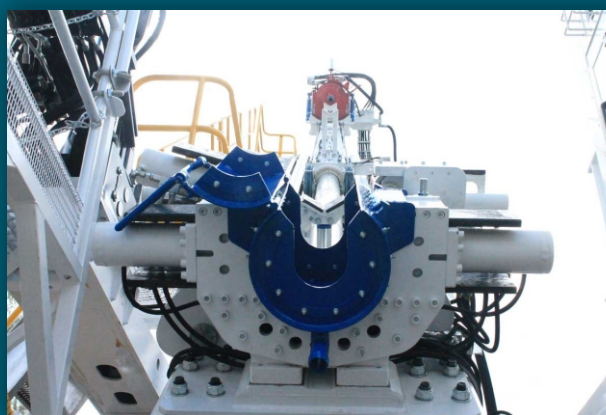
DRY ROTARY
DRILLING METHODS
USING AUGERS

REVERSE CIRCULATION
(MUD ROTARY) USING
AIRLIFT

DIRECT
CIRCULATION
DRILLING METHODS

DOWN THE HOLE (DTH)
HAMMER DRILLING
METHODS

DIAMOND WIRE-
LINE CORING
METHODS



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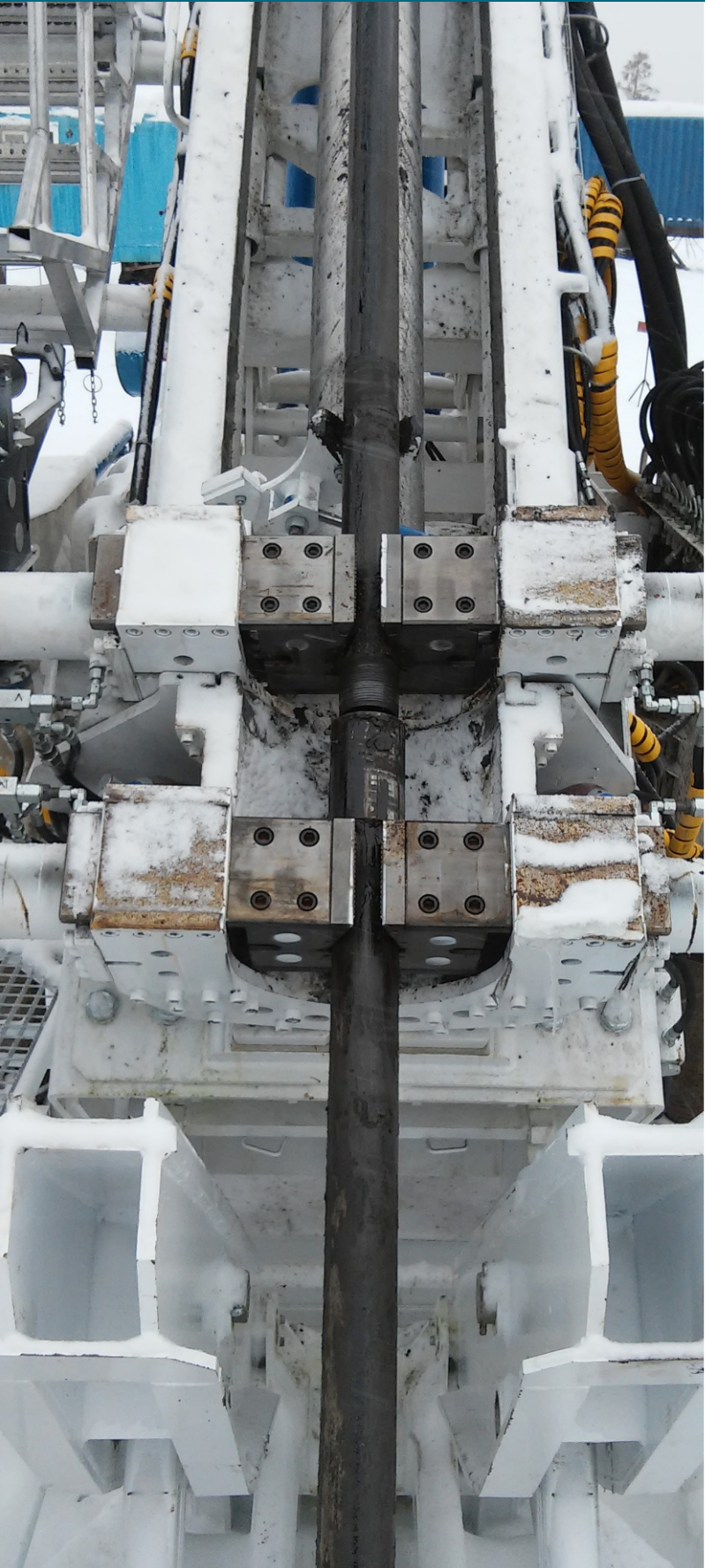


TECHNICAL PARAMETERS / FEATURES

MODEL	cs35	cs50	MODEL	cs65	cs90
Depth, m*	900	1200	Depth, m*	1500	2000
Pullback/Pushdown capacity, kN	360/150	500/200	Pullback/Pushdown capacity, kN	650/200	800/200
Feed speed, m/s	0-1.0		Feed speed, m/s	0-1.0	
Rotary head			Rotary head		
Max torque, Nm	13000	27450	Max torque, Nm	35380	30785
RPM	150	130	RPM	120	145
Main winch (optionally)			Main winch (optionally)		
Max line pull, kN	130	—	Max line pull, kN	—	—
Auxiliary winch			Auxiliary winch		
Max line pull, kN	20/59		Max line pull, kN	20/59	
Mast type	single	single/telescopic	Mast type	single/telescopic	
Free working height rotary head, mm	7500-9000	7500-12000	Free working height rotary head, mm	7500-12000	12000
Hydraulic wrench			Hydraulic wrench		
Clamping capacity drill pipes, mm	70-114	89-127	Clamping capacity drill pipes, mm	89-127	89-178
Centrifugal mud pump (optionally)	3000 l/min; 7 bar		Centrifugal mud pump (optionally)	3000 l/min; 7 bar	
Injection pump (optionally)	30 l/min; 40 bar		Injection pump (optionally)	30 l/min; 40 bar	
DTH line-oiler (optionally)	63 l, 9 l/h		DTH line-oiler (optionally)	63 l, 9 l/h	
2-Stage compressor (on the board or out the board)	15 m³/min, 15 bar 30 m³/min, 25 bar	30 m³/min, 25 bar	2-Stage compressor (on the board or out the board)	30 m³/min, 25 bar 35 m³/min, 30 bar	
Mud pump (optionally)	800 l/min, 20 bar 2240 l/min, 40 bar		Mud pump (optionally)	800 l/min, 20 bar 2240 l/min, 40 bar	
Type of rod loader	mechanical/cassette	mechanical/cassette/ manipulator	Type of rod loader	mechanical/cassette/ manipulator	hands free rod loader
Explosion safety system (optionally)	ATEX		Explosion safety system (optionally)	ATEX	

* - depending on tool string size and weights and on the geology to be drilled

FEATURES



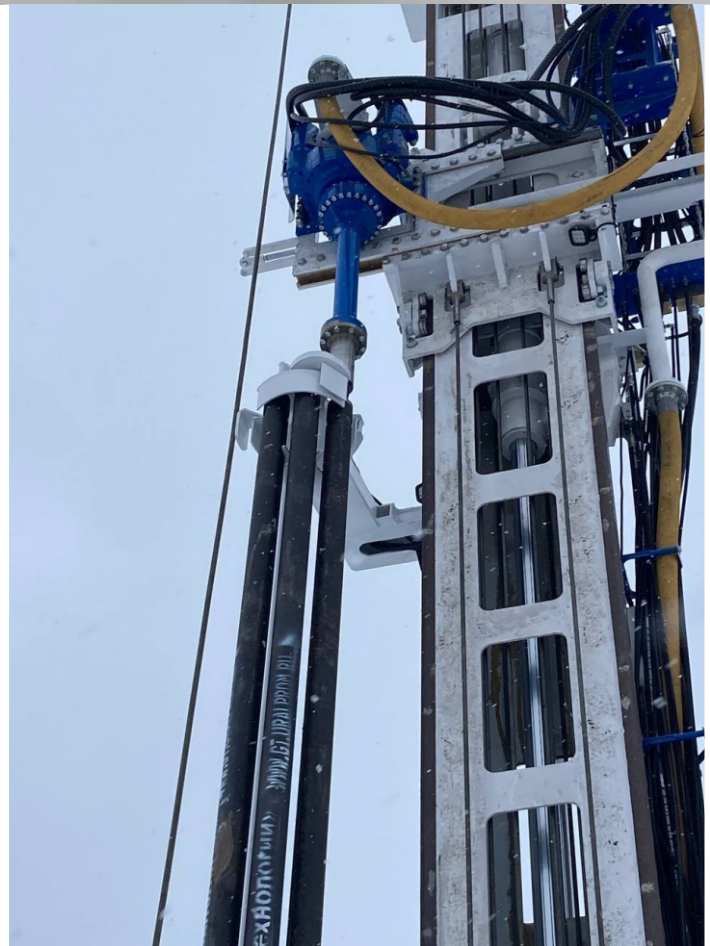
Max torque, Nm	298 000
Max diameter drill pipes, mm	2

BREAKOUT WRENCH



Max torque, Nm	21 700
Max diameter drill pipes, mm	127

SWING/SINGLE OR HANDS FREE ROD LOADER



CONTROL AND RECORDING SYSTEM

- 1 Pull-up and pull-down capacity, kN
- 2 Torque, N-m
- 3 Rotary head rotation, rpm
- 4 Diesel engine rotation, rpm
- 5 Fuel level, l
- 6 Oil level in hydraulic tank, l
- 7 Oil temperature in hydraulic tank, l
- 8 Hydraulic system's pressure, bar
- 9 Drilling mud pressure, bar
- 10 Drilling mud temperature, °C

Direct circulation drilling methods

Directional drilling with downhole motor uses DDMS and communication system in rods

When drilling with Down-the-Hole (DTH)

equipment, air, instead of drilling mud, is circulated through the drill pipe. The compressed air drives the percussive hammer and removes the cuttings from the bit, carrying them back to surface, in the annular space. The DTH hammer drilling method is the fastest, especially in very hard, competent rock.

The air-lift drilling method

uses compressed air to initiate an upward flow of the water based drilling mud with cuttings inside the drill-pipe. The drilling mud with cuttings are thus transported to surface, into a tank or pit. There the cuttings are separated from the mud, and the mud flows back into the bore-hole.

Reverse circulation DTH-hammer drilling method

the DTH-hammer can also be used using the reverse circulation drilling method. Generally, the DTH hammer RC drilling method is applied in the mining sector, drilling large diameter dewatering wells or rescue bores for trapped miners, etc.

